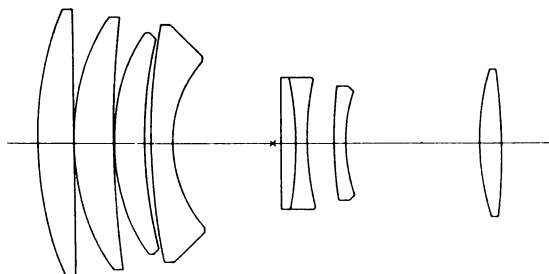


MINOLTA AF 200mm F2.8 APO TELE (2593-100)

MINOLTA MAXXUM AF 200mm F2.8 APO TELE (2593-600)

LENS



Construction : 8 elements in 7 groups
Type : Telephoto
Coating : Minolta Achromatic
Angle of view : 12°30'
Lens mount : Minolta A mount
Lens signal contact : 5 contacts
Diaphragm : Automatic preset diaphragm
f No. : Maximum.....2.8
Minimum.....32
Full-stop setting...7 stops
Diaphragm blade : 9 blades



DIMENSIONS & WEIGHT

Dimensions : $\phi 86$ (max. diameter) \times
134mm(max. length)
Weight : 795 g
Filter-thread diameter : $\phi 72$ mm(P=0.75)
Lens hood : Built-in

FOCUSING

Focusing : AF, FA, M
Type : Internal-component focusing
Minimum focusing distance : 1.5m
Distance scale :

5	5.5	6	7	8	10	15	20	50
1.5	1.7	2	2.5	3	4	5	7	20

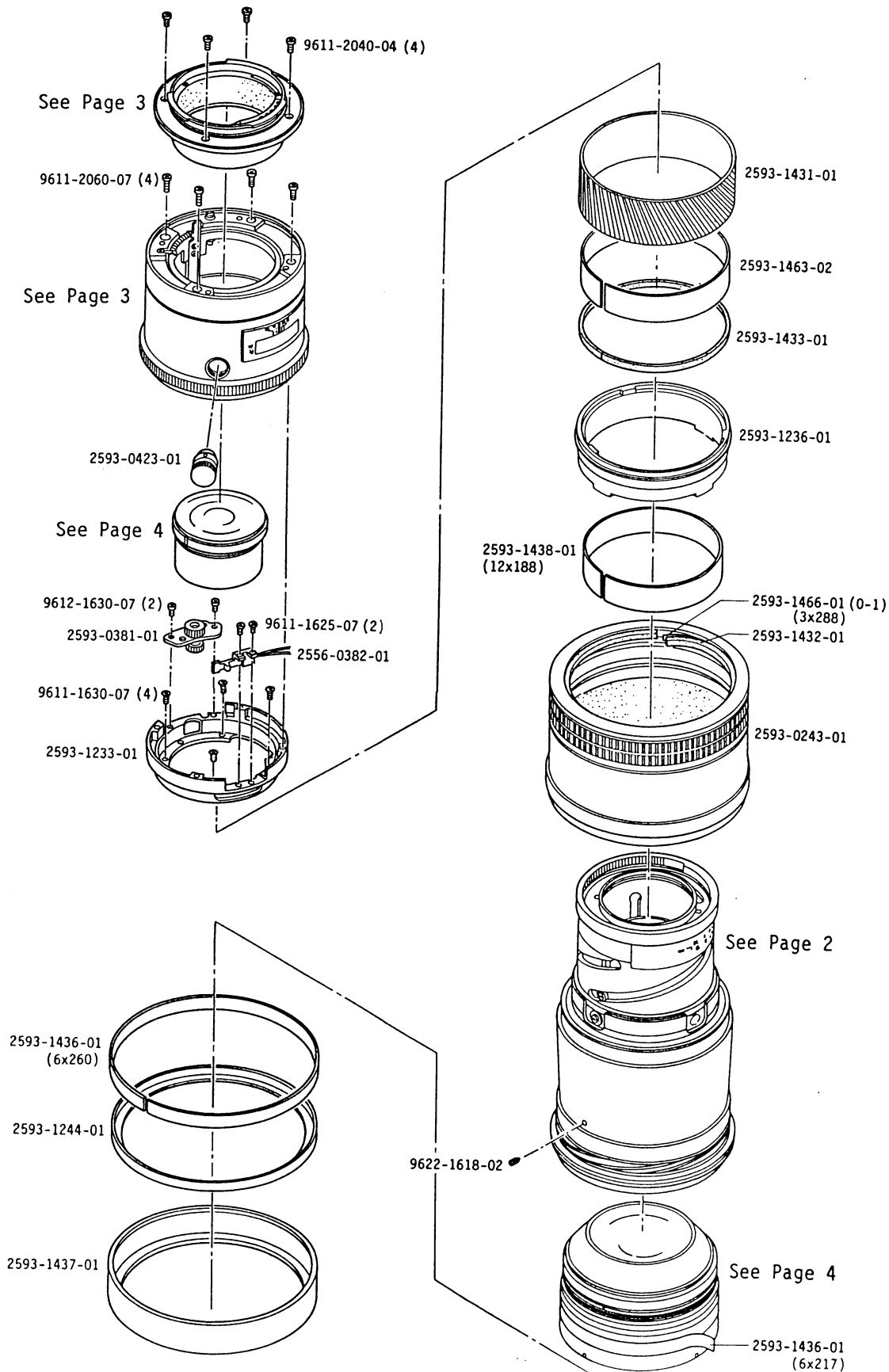
Infrared correction scale : Yes
Depth-of-field scale : 16 32

ACCESSORIES

Lens case 6593-511 (with strap)
Lens case 6593-510 (without strap)
Filter : CLR 7072-102

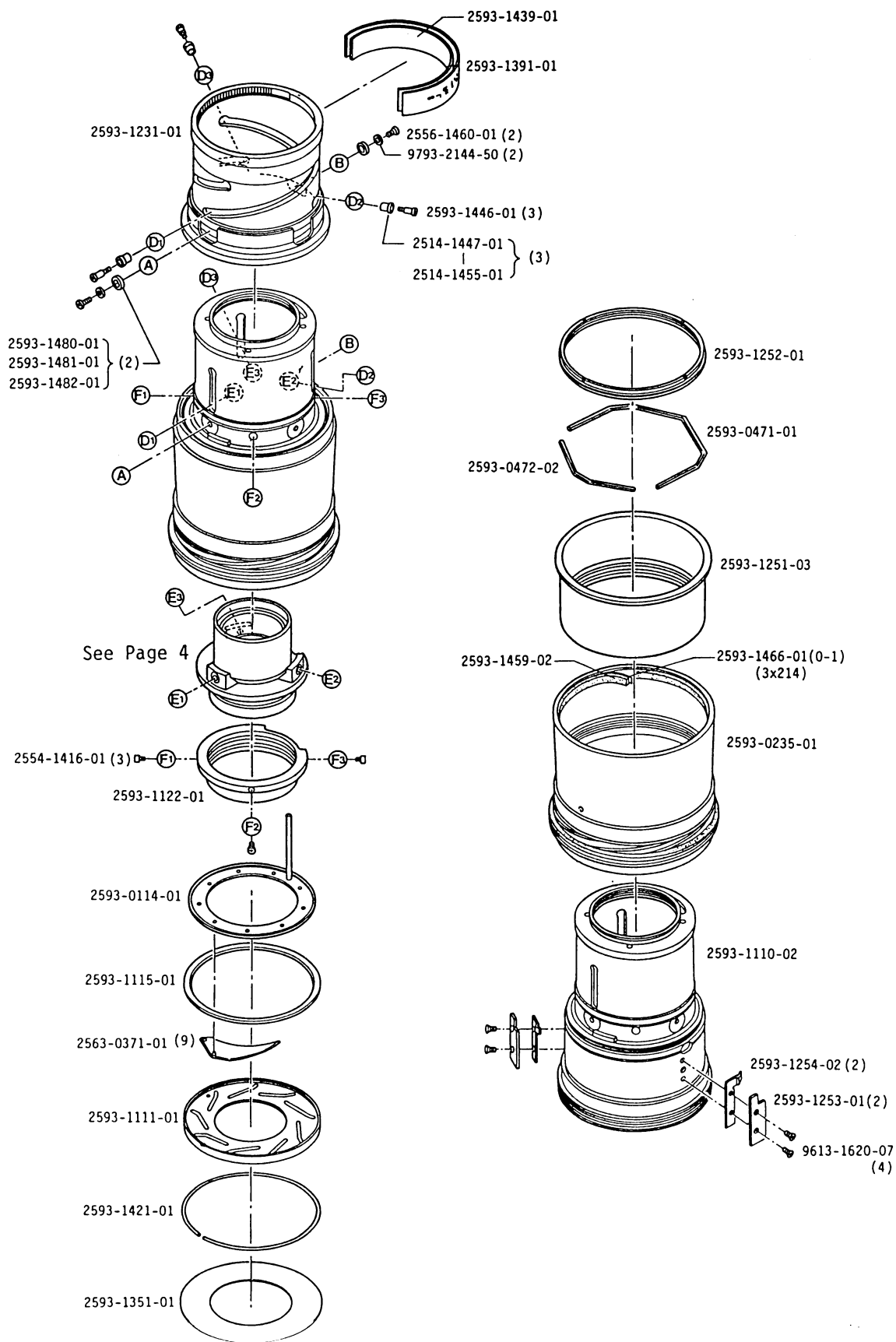
Part No.	Page	Part No.	Page	Part No.	Page
2593-0042.....	4	2593-1246.....	3	2514-1455.....	2
2593-0045.....	4	2593-1251.....	2	2593-1459.....	2
2593-0114.....	2	2593-1252.....	2	2556-1460.....	2
2593-0235.....	2	2593-1253.....	2	2593-1463.....	1
2593-0240.....	3	2593-1254.....	2	2593-1464.....	3
2593-0243.....	1			2593-1466.....	1
2563-0371.....	2	2593-1351.....	2	2593-1480.....	2
2593-0381.....	1	2593-1373.....	3	2593-1481.....	2
2556-0382.....	1	2593-1374.....	3	2593-1482.....	2
2593-0423.....	1	2593-1377.....	3		
2593-0430.....	3	2563-1380.....	3	2550-1501.....	3
2563-0440.....	3	2561-1385.....	3	2563-1503.....	3
2593-0471.....	2	2593-1391.....	2	2593-1601.....	4
2593-0472.....	2			2593-1801.....	4
2593-0810.....	4	2593-1402.....	3	2593-1802.....	4
		2554-1416.....	2	2593-1803.....	4
2593-1101.....	4	2593-1420.....	3	2593-1804.....	4
2593-1102.....	4	2593-1421.....	2		
2593-1104.....	4	2593-1431.....	1	9391-0807-00.....	3
2593-1106.....	4	2593-1432.....	1	9432-2216-61.....	3
2593-1107.....	4	2593-1433.....	1		
2593-1108.....	4	2593-1436.....	1	9611-1422-07.....	3
2593-1109.....	4	2593-1437.....	1	9611-1618-07.....	3
2593-1110.....	2	2593-1438.....	1	9611-1625-07.....	1
2593-1111.....	2	2593-1439.....	2	9611-1630-07.....	1
2593-1115.....	2	2551-1444.....	3	9611-2040-04.....	1
2593-1121.....	4	2563-1445.....	3	9611-2060-07.....	1
2593-1122.....	2	2550-1446.....	3	9612-1630-07.....	1
2563-1127.....	3	2593-1446.....	2	9613-1620-07.....	2, 3
2581-1128.....	3	2514-1447.....	2	9621-1616-02.....	3
		2514-1448.....	2	9622-1618-02.....	1
2593-1230.....	3	2514-1449.....	2		
2593-1231.....	2	2514-1450.....	2	9758-0120-00.....	3
2593-1233.....	1	2514-1451.....	2	9793-2144-50.....	2
2593-1236.....	1	2514-1452.....	2		
2593-1242.....	3	2514-1453.....	2		
2593-1244.....	1	2514-1454.....	2		

AF APO TELE 200mm F2.8(32) Code No.2593-100
 MAXXUM AF APO TELE 200mm F2.8(32) Code No.2593-600

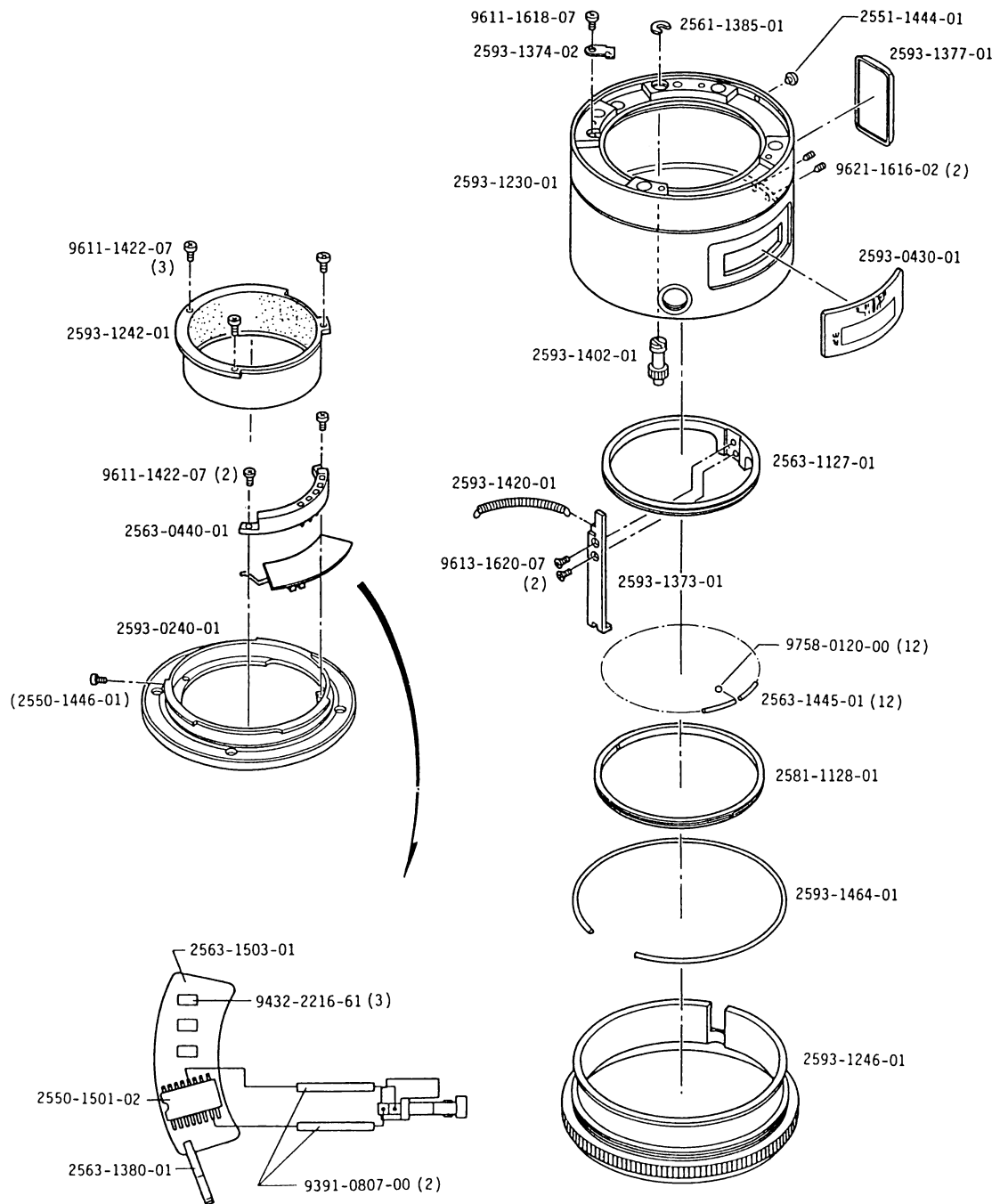


Part No	Part Name		Qty.
2593-0243-01	Hood set	フードセット	1
2593-0381-01	Gear set	ギヤーセット	1
2556-0382-01	Distance switch set	接片セット	1
2593-0423-01	Focusing clamp knob set	フォーカスクランプノブセット	1
2593-1233-01	Fixed barrel	固定筒	1
2593-1236-01	Focusing ring	距離リング	1
2593-1244-01	Guide ring	フード抜け止め	1
2593-1431-01	Rubber ring	ゴムリング	1
2593-1432-01	Friction tape	フード摩擦布	1
2593-1433-01	Friction tape	距離摩擦布	1
2593-1437-01	Hood rubber ring	フードゴムリング	1
2593-1436-01	Tape (per/roll)	テープ	1
2593-1438-01	Tape (per/roll)	テープ	1
2593-1463-02	Guide plate	補強板	1
2593-1466-01	Tape (per/roll)	テープ	1
9611-1625-07	Phillips type screw	十字穴付なべ小ねじ	2
9611-1630-07	Phillips type screw	十字穴付なべ小ねじ	4
9611-2040-04	Phillips type screw	十字穴付なべ小ねじ	4
9611-2060-07	Phillips type screw	十字穴付なべ小ねじ	4
9612-1630-07	Phillips type screw	十字穴付なべ小ねじ	2
9622-1618-02	Screw	とがり先止めねじ	1

AF APO TELE 200mm F2.8(32) Code No.2593-100
 MAXXUM AF APO TELE 200mm F2.8(32) Code No.2593-600



Part No	Part Name		Qty.
2593-0114-01	Diaphragm operation plate set	絞り操作板セット	1
2593-0235-01	Front barrel set	鏡頭環セット	1
2563-0371-01	Diaphragm blade set	絞り羽根セット	9
2593-0471-01	Hood friction spring - A set	フードスプリングAセット	1
2593-0472-02	Hood friction spring - B set	フードスプリングBセット	1
2593-1110-02	Inner barrel	内筒	1
2593-1111-01	Diaphragm pressure ring	絞り押え環	1
2593-1115-01	Operation plate guide	絞り操作板受け	1
2593-1122-01	Light shield ring	前遮光筒	1
2593-1231-01	Focus cam barrel	フォーカスカム環	1
2593-1251-03	Focusing ring cover	距離環保護筒	1
2593-1252-01	Cover pressure ring	保護筒押え	1
2593-1253-01	Cover guide	保護筒ガイド	2
2593-1254-02	Lock spring	ロックスプリング	2
2593-1351-01	Light shield plate	前遮光板	1
2593-1391-01	Distance scale plate	距離目盛板	1
2554-1416-01	Filter ring guide pin - A	ガイドピン	3
2593-1421-01	Pressure spring	絞り押え環スプリング	1
2593-1439-02	Tape	テープ	1
2593-1446-01	Guide pin	案内ピン	3
2593-1459-02	Friction tape	保護リング摩擦布	1
2514-1447-01	Guide roller - A (D1= ϕ 4.53 D2= ϕ 4.03)	案内ローラー	3
2514-1448-01	Guide roller - B (D1= ϕ 4.53 D2= ϕ 4.02)	案内ローラー	
2514-1449-01	Guide roller - C (D1= ϕ 4.53 D2= ϕ 4.01)	案内ローラー	
2514-1450-01	Guide roller - D (D1= ϕ 4.52 D2= ϕ 4.03)	案内ローラー	
2514-1451-01	Guide roller - E (D1= ϕ 4.52 D2= ϕ 4.02)	案内ローラー	
2514-1452-01	Guide roller - F (D1= ϕ 4.52 D2= ϕ 4.01)	案内ローラー	
2514-1453-01	Guide roller - G (D1= ϕ 4.51 D2= ϕ 4.03)	案内ローラー	
2514-1454-01	Guide roller - V (D1= ϕ 4.51 D2= ϕ 4.02)	案内ローラー	
2514-1455-01	Guide roller - W (D1= ϕ 4.51 D2= ϕ 4.01)	案内ローラー	2
2556-1460-01	Screw	ガイドピン	
2593-1480-01	Guide roller (D = ϕ 6.22)	カム環案内ローラー	
2593-1481-01	Guide roller (D = ϕ 6.23)	カム環案内ローラー	
2593-1482-01	Guide roller (D = ϕ 6.24)	カム環案内ローラー	
9613-1620-07	Phillips type screw	十字穴付皿小ねじ	4
9793-2141-50	Washer	薄ワッシャー	2



Part No	Part Name		Qty.
2593-0240-01	Bayonet mount set	バヨネットマウントセット	1
(2550-1446-01)	Screw	ストッパービス	1
			1
2593-0430-01	Distance scale window set	距離表示窓セット	1
2563-0440-01	Lens contact pin set	信号ピンセット	1
			1
2563-1127-01	Preset ring	プリセットリング	1
2581-1128-01	Preset ring pressure	プリセットリング押え	1
2593-1230-01	Outer ring	固定保持環	1
2593-1242-01	Light shield ring	後遮光筒	1
2593-1246-01	Focus stopper ring	フォーカスストッパー環	1
2593-1373-01	Preset lever	プリセットレバー	1
2593-1374-02	Spring hanger	メインSP掛け	1
2593-1377-01	Name plate	銘板	1
2563-1380-01	Spring	アースプリング	1
2561-1385-01	C washer	Cワッシャー	1
2593-1402-01	Coupler	カプラー	1
2593-1420-01	Main spring	メインスプリング	1
2551-1444-01	Bayonet point	バヨネット標点	1
2563-1445-01	Spacer	スペーサー	12
2593-1464-01	Pressure spring	フォーカスストッパー環押えSP	1
2550-1501-02	IC (TOSHIBA, ML00J)	I C	1
2563-1503-01	Flexible P.C board	フレキ	1
9611-1422-07	Phillips type screw	十字穴付なべ小ねじ	3
9611-1618-07	Phillips type screw	十字穴付なべ小ねじ	1
9613-1620-07	Phillips type screw	十字穴付皿小ねじ	2
9621-1616-02	Screw	平先止めねじ	2
9758-0120-00	Steel ball	スチールボール	12
9391-0807-00	Lead wire (Black, $\varnothing = 55$)	リード線	2
9432-2216-61	Fixed resistor (1/8w, 220 Ω)	固定抵抗	3

■ When repairing following parts, must be checked resolving power by projection.

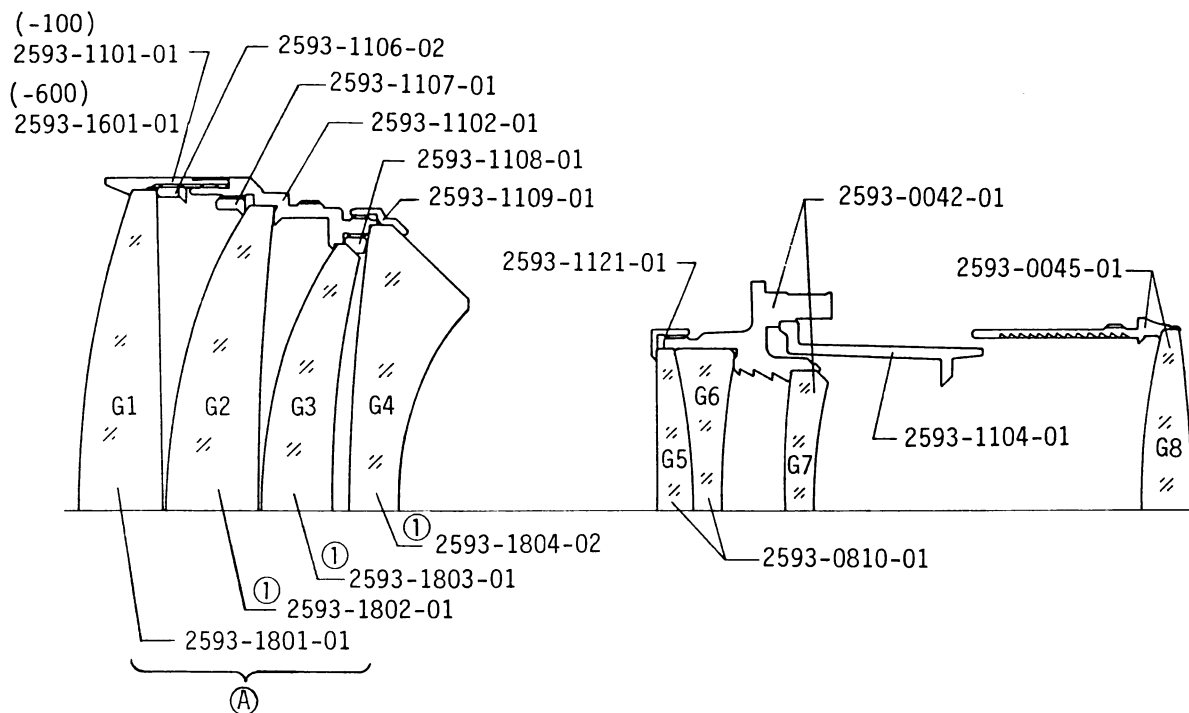
■ 下記部品を修理した場合は、必ず投影解像力を確認して下さい。

①: The influential lens element in the lens performance. (Number shows in order.)

①: レンズ性能によく影響するレンズ。(数字は順位を示す)

Ⓐ: The influential lens group in the lens performance. (Influence: In alphabetical order)

Ⓐ: レンズ性能によく影響するレンズ群。(影響度: アルファベット順)



Part No	Part Name		Qty.
2593-0810-01	G5, 6 set	レンズ G 5, 6 セット	1
2593-0042-01	Middle lens barrel set	中玉枠セット	1
2593-0045-01	Rear lens set	後玉枠セット	1
2593-1101-01	Front lens barrel - A (-100)	前玉枠 A	1
2593-1102-01	Front lens barrel - B	前玉枠 B	1
2593-1104-01	Light shield barrel	遮光筒	1
2593-1106-02	G1 pressure ring	G 1 押え	1
2593-1107-01	G2 pressure ring	G 2 押え	1
2593-1108-01	G3 pressure ring	G 3 押え	1
2593-1109-01	G4 pressure ring	G 4 押え	1
2593-1121-01	G5 pressure ring	G 5, 6 押え	1
2593-1601-01	Front lens barrel - A (-600)	前玉枠 A	1
2593-1801-01	Lens G1	レンズ G 1	1
2593-1802-01	Lens G2	レンズ G 2	1
2593-1803-01	Lens G3	レンズ G 3	1
2593-1804-02	Lens G4	レンズ G 4	1

REPAIR GUIDE

- The contents of this manual are in accordance with the assembling procedure. Therefore, follow the reverse procedure when disassembling.

—Description of marks used—

- **[B]** : Adhesive
- **[S]** : Solvent
- **[A]** : Anti-diffusion agent
- **[G]** : Grease
- **[T]** : Tool
- : Point of assembling and general caution

■ Assembly and adjustment procedure

① Inner barrel, Front barrel set, Focusing ring cover	p. 1
② Focus cam barrel, Middle lens barrel set, Diaphragm blades	p. 2
③ Outer ring, Preset ring, Focus stopper ring	p. 3
④ Fixed barrel, Distance switch set, Gear set, Rear lens set, Bayonet mount, Lens contact pin set, Flexible PC board, Light shield ring	p. 4
■ Aperture diameter adjusting, aperture diameter pre-checking	p. 4
⑤ Front lens group set, Hood set	p. 5
■ Flange back (f'F) adjusting	p. 5
■ Aperture diameter checking	p. 5
■ Projection resolving power checking	p. 5
■ General function checking	p. 5
■ Flange back (f'F) adjusting procedure	p. 6
■ Description of focusing	p. 7
■ Schematic circuit diagram, Printed wiring diagram	p. 8

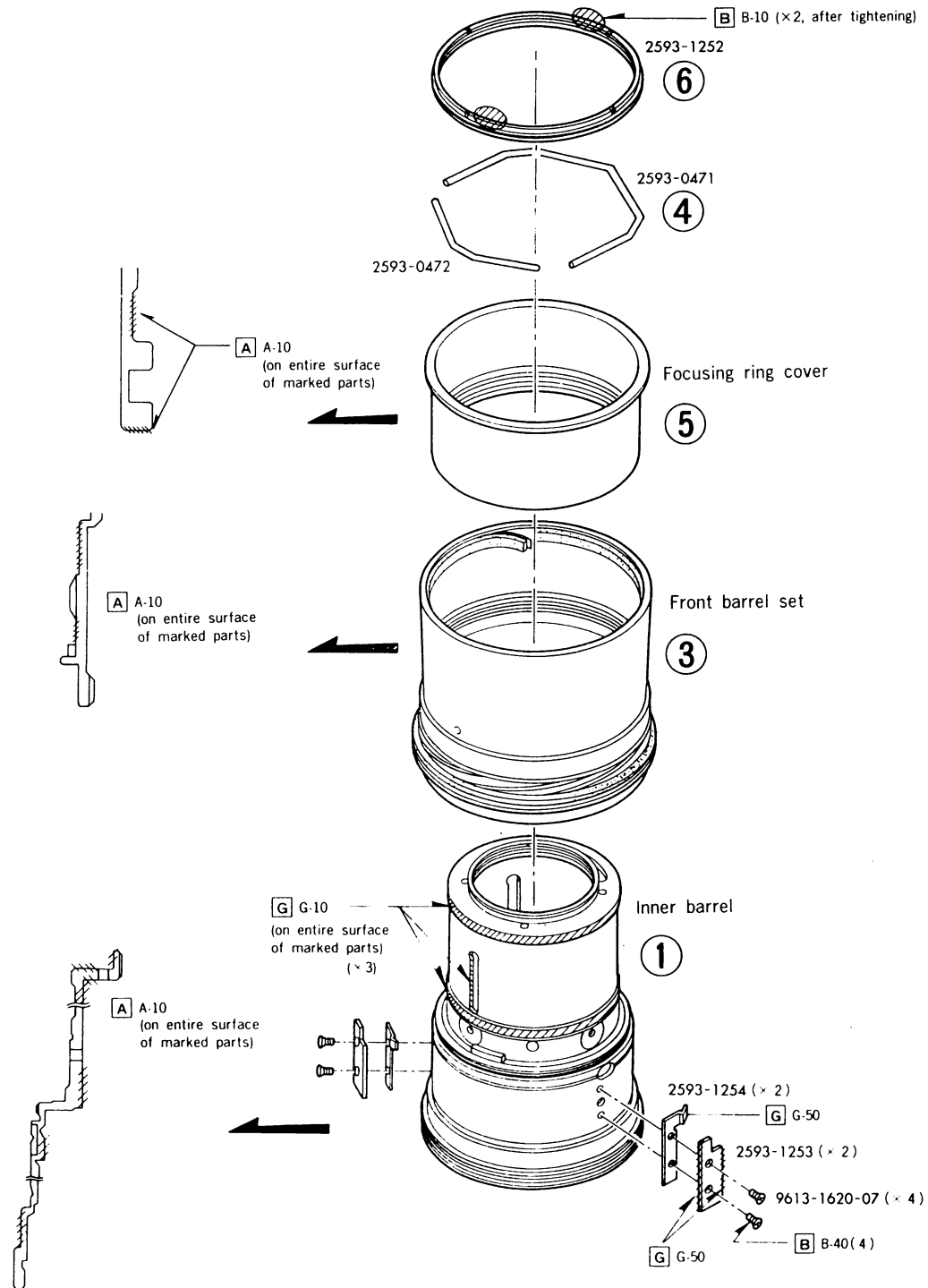
■ Precautions

- Since this lens uses many resin parts, keep the following in mind when assembling and adjusting.
 - Use Fronsolve or alcohol when cleaning.
 - Never use thinner, ketone or ether.
- Since this lens uses MOS-IC, it is necessary to take special precautions about static electricity.
 - When performing repair, use the conductive mat as shown.



1 Inner barrel, Front barrel set, Focusing ring cover

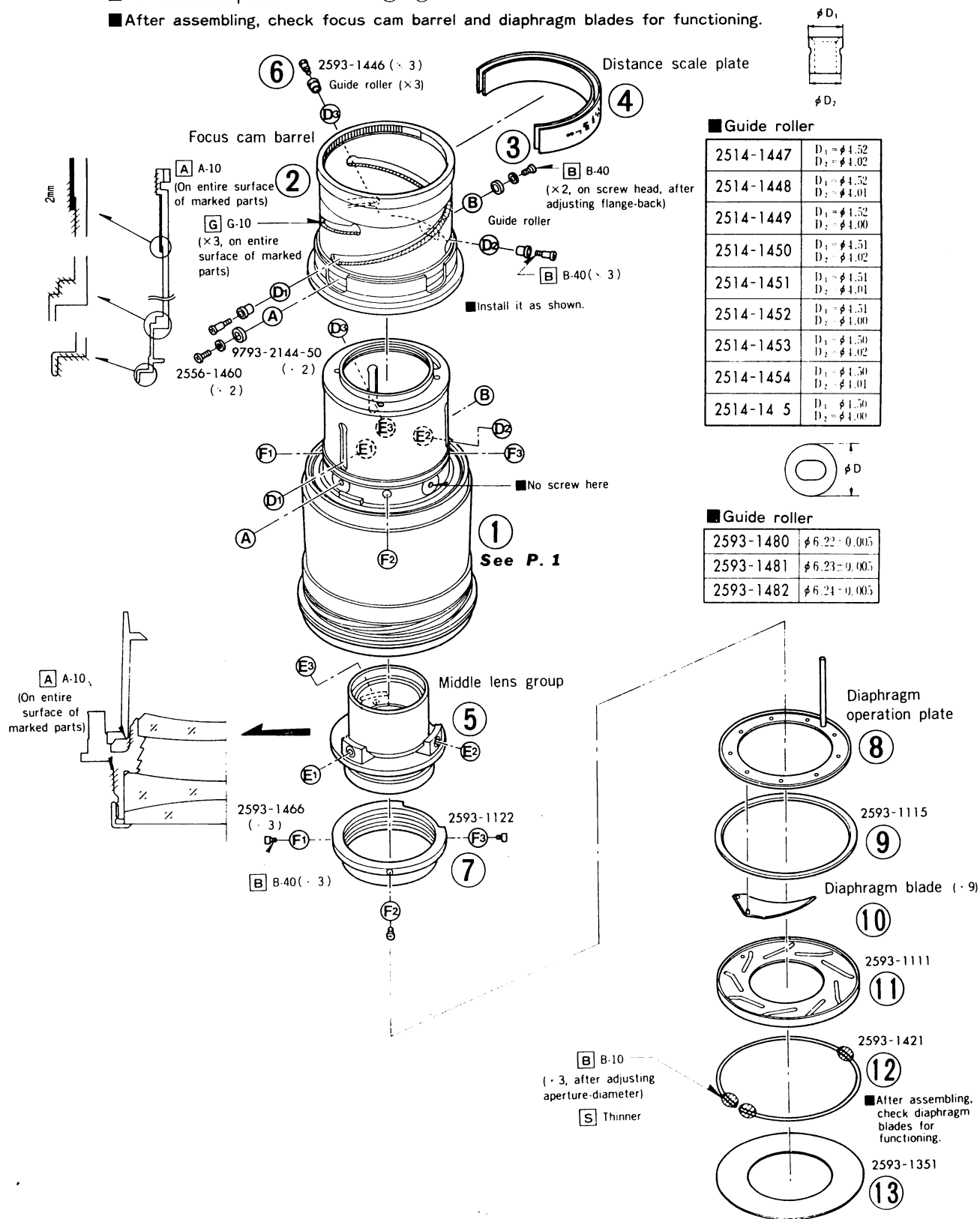
- Assemble the parts in order of ①-⑥.
- After assembling, check focusing-ring-cover for functioning.



2 Focus cam barrel, Middle lens barrel set, Diaphragm blades

■ Assemble the parts in order of ①-⑬.

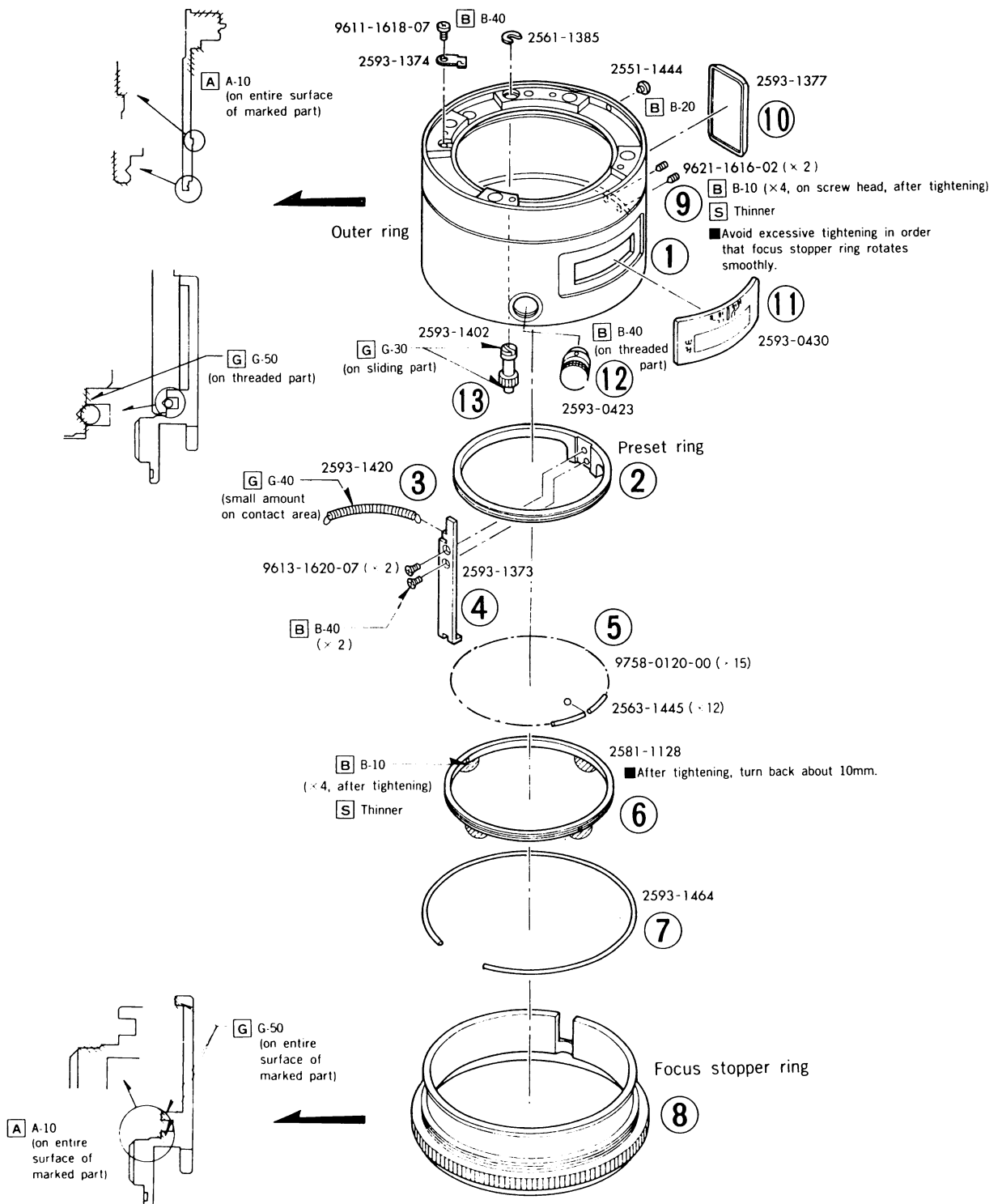
■ After assembling, check focus cam barrel and diaphragm blades for functioning.



3 Outer ring, Preset ring, Focus stopper ring

■ Assemble the parts in order of ①-⑬.

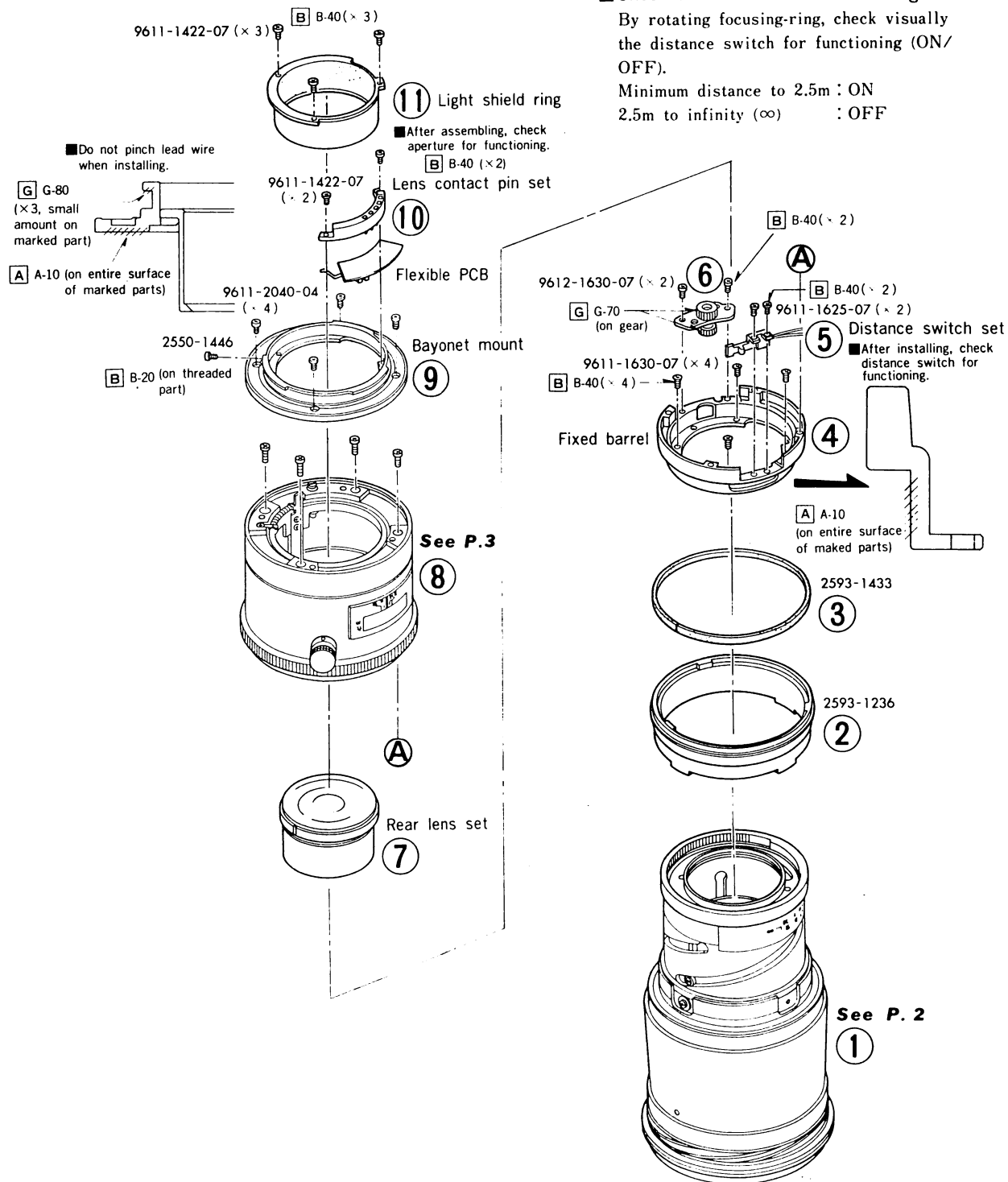
■ After assembling, check focus stopper ring and preset ring for functioning.



4 Fixed barrel, Distance switch set, Gear set, Rear lens set, Bayonet mount, Lens contact pin set, Flexible PC board, Light shield ring.

■ Assemble the parts in order of ①-⑪.

■ After assembling, perform "Aperture diameter adjusting" and "Aperture diameter pre-checking" following General checking/adjusting procedure pp. 8-11.



5 Front lens group set, Hood set

■ Assemble the parts in order of ①-⑧.

■ After assembling the front lens group, perform the flange back adjusting. (See p. 6)
Allowable range $f'F(\text{mm})=44.57\pm 0.1$

■ After assembling, perform the following checkings.

- (1) Check aperture diameter.
(See General checking/adjusting procedure p. 8)
- (2) Check projection resolving power.
(See General checking/adjusting procedure p. 6)

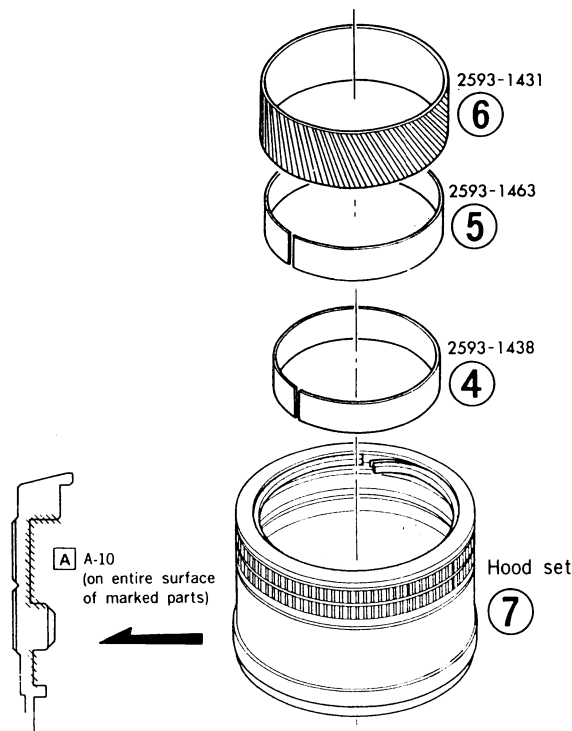
Allowable range for servicing

f (mm)	Distance D(m)	Center ($y'=0\text{mm}$)	$y'=15\text{mm}$	
			S	M
200	3-8	100	50	50

S : Sagittal image

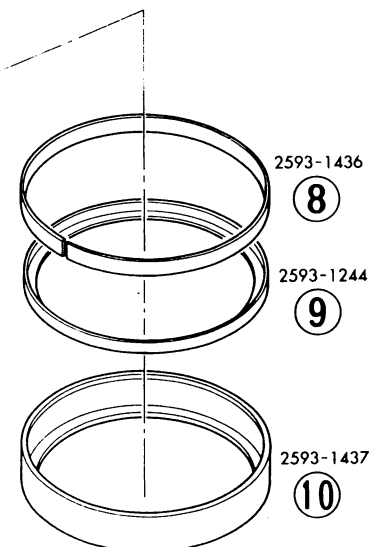
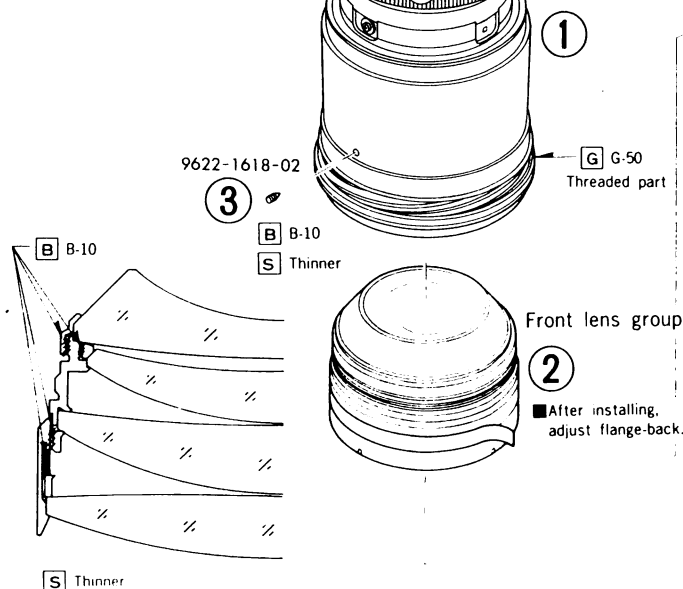
M : Meridional image

- (3) Check general function.
(See General checking/adjusting procedure p. 14)



■ Tighten 2593-0423 before installing hood set.

See P. 4



■ Flange back adjusting procedure

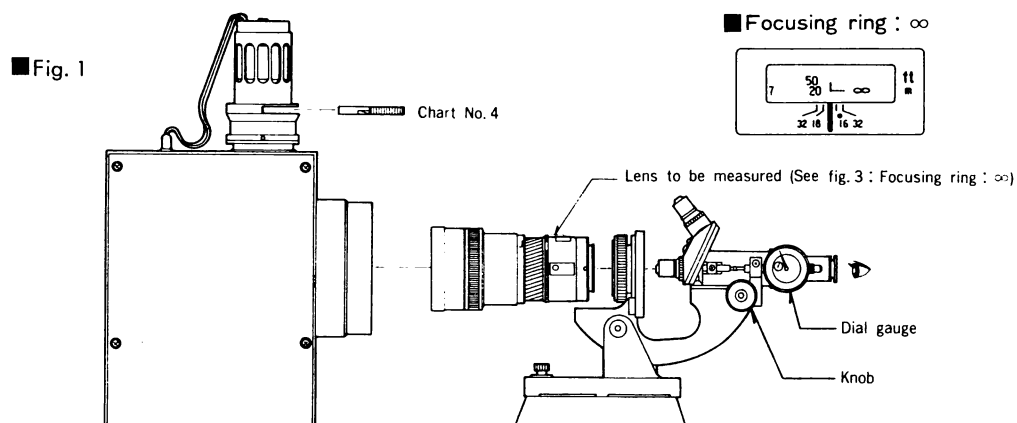
■ Measuring instruments : Collimator (Model RC-1000 I*, II*, III)

※Discontinued model

- : Flange back checking tester (FB-1)
- : A-mount attachment for FB-1
- : Flange back gauge (43.50mm)

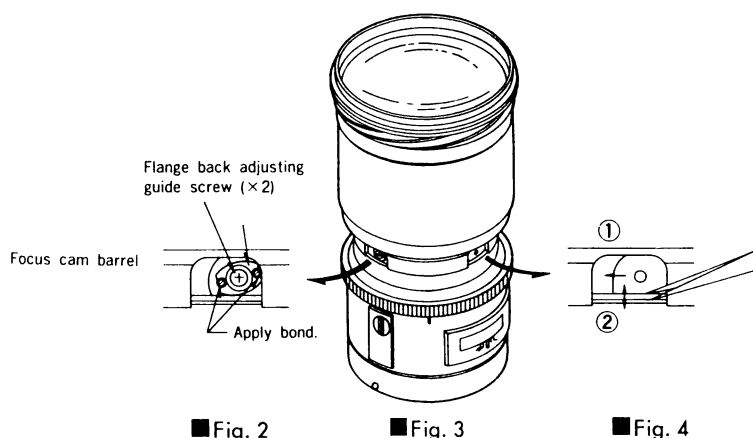
■ Preparation

1. Set lens and measuring instruments as shown in fig. 1.
(Refer to flange back measuring/adjusting procedure on General checking/adjusting procedure p. 1.)



■ Adjusting procedure

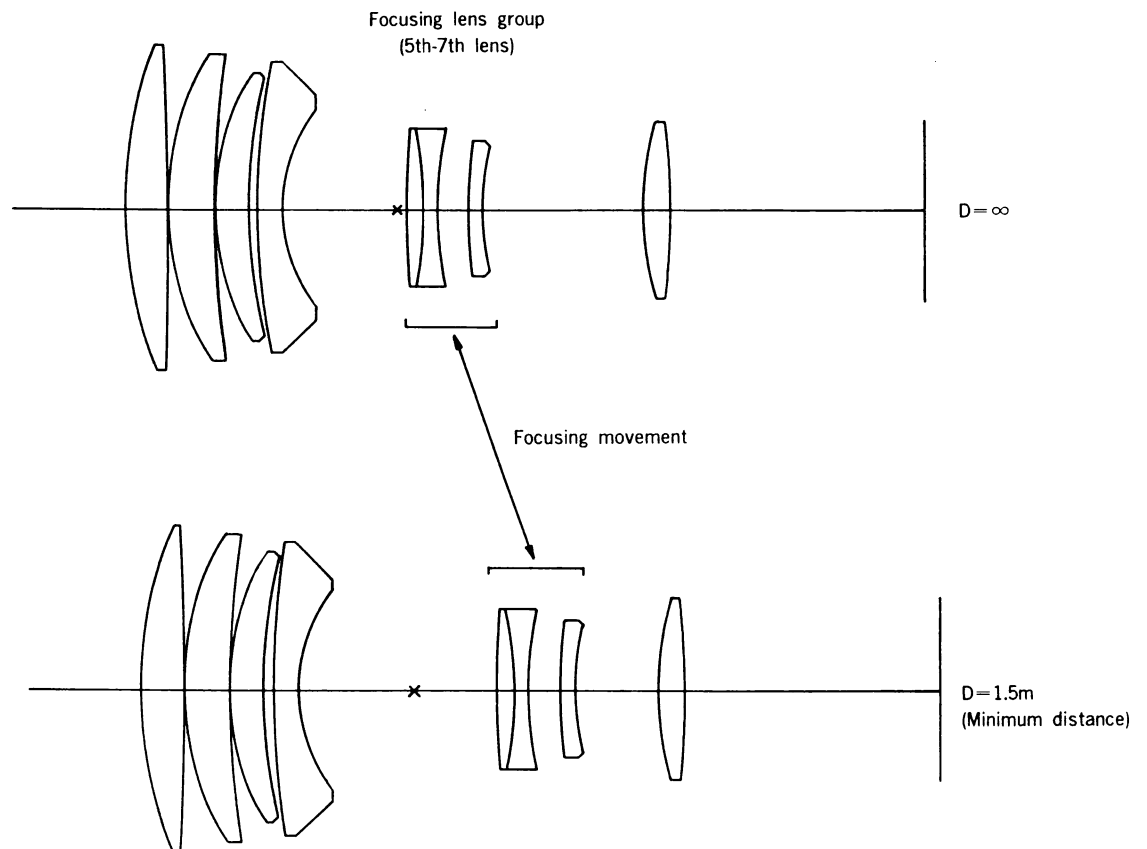
1. Loosen flange-back-adjusting-guide-screws (×2) to free guide rollers (×2). (fig. 2)



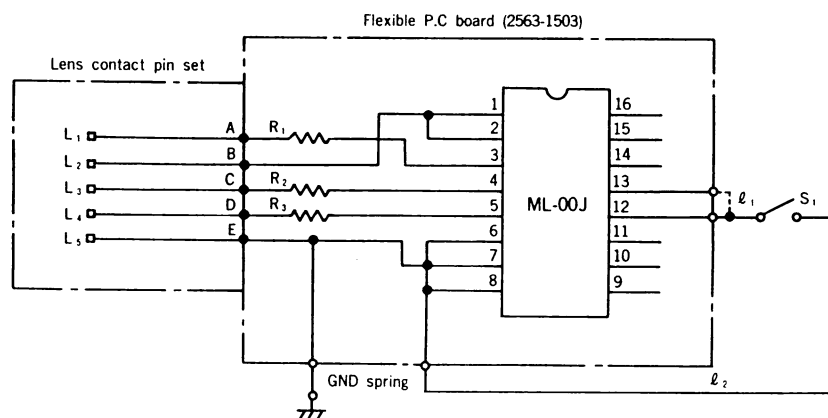
2. Turn knob to set dial gauge at middle of flange back allowable range. (44.47~44.67mm)
3. Adjust flange back turning focus cam barrel. (fig. 4)
Shift focus cam barrel back and forth (in the direction of arrow ②), pressing it to infinity side (in the direction of arrow ①) in order to adjust focus. (Stop turning at the in-focus point where green and red colors appear in equal quantity.)
4. Tighten guide rollers (fig. 2)
Incline guide roller, holding focus cam barrel not to be moved, and re-tighten the screws (×2) to set position of focus cam barrel.
5. Check if flange back meets allowable range. (If out of allowable range, repeat above procedures 1-4.)
6. Apply bond (B-10) on guide roller and the screws. (fig. 2)

■ Description of focusing

- Telephoto type lens.
- IF (internal focusing) system is employed, so total length of lens does not change regardless of subject distance (D) from ∞ to minimum distance side.
- By rotating AF coupler or focusing ring, focusing lens group moves.



Schematic circuit diagram, Printed wiring diagram



L₁₋₅ : Lens signal contacts
R₁₋₃ : Fixed resistors

ML-00J : ROM-IC
A-E : Soldering points
S₁ : Distance switch
($\infty \leftrightarrow 2.5\text{m}$: OFF, $2.5\text{m} \leftrightarrow \text{minimum distance}$: ON)
 ℓ_1 : Lead wire (black)
Solder to ROM IC at pin ⑫ or ⑬, or both.
 ℓ_2 : Lead wire (black)

Lens contact pin set (2563-0440)

